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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/895,892 | 06/29/2001 | Kay Lichtenwalter | 1094560-3 | 3390 |

7590 05/10/2005
AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

CHIN, CHRISTOPHER L

ART UNIT PAPER NUMBER

1641

DATE MAILED: 05/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--|---|--|
| Office Action Summary | Application No. 09/895,892 | Applicant(s) LICHTENWALTER, KAY | |
| | Examiner Christopher L. Chin | Art Unit 1641 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38 and 43-50 is/are pending in the application.
- 4a) Of the above claim(s) 50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38, 43-45 and 47-49 is/are rejected.
- 7) ☒ Claim(s) 46 is/are objected to.
- 8) ☒ Claim(s) 38 and 43-50 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/4/04</u> . | 6) <input type="checkbox"/> Other: _____ |

RD

DETAILED ACTION

Election/Restrictions

1. Applicant's election of species DNA in the reply filed on 1/31/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim 50 is withdrawn as being directed to a non-elected claim.

Specification

2. The disclosure is objected to because of the following informalities:
a.) The status of the parent application cited on page 1 of the specification should be updated.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 38 and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Brennan.

Brennan (US Patent 5,474,796) discloses an array plate. Solutions of chemical reactants are added to functionalized binding sites on the plate surface by means of a piezoelectric pump. The pump deposits microdroplets of chemical reactant solution onto the binding sites. The chemical reactant at each binding site is separated from the others by surface tension. Typically, the plate has $10\text{-}10^4$ functionalized binding sites per cm^2 and each functionalized binding site is about 50-2000 microns in diameter. Typically, the amounts of reagents added to each binding site is in a volume of about 50 picoliter to 2 microliter. The reactions of the functionalized binding site may form covalent bonds such as esters or amide bonds or may involve non-covalent specific binding reactions, such as antibody/antigen binding or oligonucleotide specific binding (col. 2, lines 11-28). The plate is composed of glass (col. 3, lines 25-27, and col. 5, lines 11-30). Oligonucleotides can be applied to the binding sites as droplets from a piezoelectric pump.

With respect to the limitation in claim 38 of each spot having a different concentration of immobilized oligonucleotide, Brennan teaches that typically the droplets of oligonucleotides will not vary in size by more than 5% (col. 6, lines 18-64). The variability in droplet size will result in variability in concentration of oligonucleotide in each droplet and each binding site will have a different concentration of oligonucleotide. Example 2 of Brennan in column 7 also teaches a variable concentration of oligonucleotide in each binding site (see specifically lines 61-67 of col. 7).

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5. Claims 38, 45, 47, 48, and 49 are rejected under 35 U.S.C. 102(b) as being anticipated by Stavrianopoulos et al.

Stavrianopoulos et al (US Patent 4,994,373) discloses an assay plate in Example 1 comprising a glass plate provided with an array of depressions or wells treated with functional groups, such as silanes. Denatured single-stranded DNA sequences from samples are fixed in each of the depressions or wells. Polynucleotide probes labeled with a chemical label hybridize to complementary single-stranded DNA sequences in each of the depressions or wells. The chemical label can be an enzyme or fluorophore (col. 8, lines 10-56, and col. 6, lines 9-26).

With respect to the limitation in claim 38 of each spot having a different concentration of immobilized oligonucleotide, each depression or well in the assay plate of Stavrianopoulos et al contains an unknown amount of analyte denatured single-stranded DNA and thus meets this limitation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan in view of Brown et al.

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See above for the teachings of Brennan.

Brennan differs from the instant invention in failing to teach drying the oligonucleotides immobilized in the binding sites.

Brown et al (US Patent 5,807,522) discloses a method of making a microarray where the analyte specific reagent in each binding site of the microarray is dried after its application. The drying can be done by heating or under vacuum (col. 9, lines 30-45). The analyte specific reagent can be nucleic acids (col. 6, lines 7-10).

[While Brown et al has a filing date of June 7, 1995, the teaching of Brown et al relied upon in this rejection has priority to the parent application which was filed on June 17, 1994.]

It would have been obvious to one of ordinary skill in the art to dry the binding sites of Brennan as taught by Brown et al because the excess liquid in each droplet applied to the binding sites containing the oligonucleotides need to be removed prior to storage and/or use of the microarray.

8. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan in view of Eriksson.

See above for the teachings of Brennan.

Brennan differs from the instant invention in failing to teach storing the microarray in a waterproof storage container.

Eriksson (US Patent 3,642,450) discloses a waterproof envelope for holding a test strip.

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It would have been obvious to one of ordinary skill in the art to enclose the microarray of Brennan in the waterproof envelope of Eriksson because the waterproof envelope of Eriksson provides the advantage of protecting the reagents on the microarray from contaminants.

Allowable Subject Matter

9. Claim 46 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher L. Chin whose telephone number is (571) 272-0815. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher L. Chin
Primary Examiner
Art Unit 1641

5/7/05